

REMARKS

Claims 1, 10, 15-23, 32, 34, 35, 38, 40 and 41 are pending. Claims 15-23, 32, 34 and 35 have been withdrawn from consideration. Claims 1, 10, 40 and 41 are the independent claims. No new matter is presented in this Amendment.

DOUBLE PATENTING

Claims 1 and 10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 11 and 15 of U.S. Patent No. 6,797,435 in view of Amatucci et al (5,705,291).

Applicants respectfully traverse this rejection for at least the following reason.

Regarding the rejection of claims 1 and 10, it is noted that U.S. Patent No. 6,797,435 relates to a positive active material comprising a core and at least two surface treatment layers formed on said core, while an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Accordingly, Applicants respectfully request that the rejection of claims 1 and 10 under the judicially created doctrine of obviousness-type double patenting be withdrawn because they are related to different matter from U.S. Patent No. 6,797,435.

Claims 1 and 10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 and 12-17 of U.S. Patent No. 6,753,111.

Applicants respectfully traverse this rejection for at least the following reason.

Regarding the rejection of claims 1 and 10, it is noted that U.S. Patent No. 6,753,111 relates to a positive active material comprising a core comprising a lithiated compound having a secondary particle having an average size larger than or equal to 1 μm and smaller than 10 μm in diameter and a surface-treatment layer on said core.

Meanwhile an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least

one additive.

Accordingly, Applicants respectfully request that the rejection of claims 1 and 10 under the judicially created doctrine of obviousness-type double patenting be withdrawn because they are related to different matter from U.S. Patent No. 6,753,111.

Claims 1 and 10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15, 28-30, 32-35 of copending Application No. 10/189,384 (U.S. Patent Application Publication 2003/0054250).

Applicants respectfully traverse this rejection for at least the following reason.

Regarding the rejection of claims 1 and 10, it is noted that U.S. Patent Publication No. 2003/0054250 relates to an active material for a battery comprising a material that undergoes reversible electrochemical oxidation-reduction reactions and having a surface and a surface-treatment layer on the surface.

Meanwhile an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Accordingly, Applicants respectfully request that the rejection of claims 1 and 10 under the judicially created doctrine of obviousness-type double patenting be withdrawn because they are related to different matter from U.S. Patent Application Publication 2003/0054250.

Claims 1 and 10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, and 23-28 of copending Application No. 10/072,923 (U.S. Patent Application Publication 2003/0003352) in view of Amatucci et al. (5,705,291).

Applicants respectfully traverse this rejection for at least the following reason.

Regarding the rejection of claims 1 and 10, it is noted that U.S. Patent Publication No. 2003/0003352 relates to a positive electrode comprising a current collector, a positive active material coated on said current collector, and a surface-treatment layer on said positive active material layer.

Meanwhile an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Accordingly, Applicants respectfully request that the rejection of claims 1 and 10 under the judicially created doctrine of obviousness-type double patenting be withdrawn because they are related to different matter from U.S. Patent Application Publication 2003/0003352.

Claims 1 and 10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10, and 25-37 of copending Application No. 09/897,445 (U.S. Patent Application Publication 2002/0071990).

Applicants respectfully traverse this rejection for at least the following reason.

Regarding the rejection of claims 1 and 10, it is noted that U.S. Patent Publication No. 2002/0071990 relates to a positive active material for a rechargeable battery comprising a core comprising at least one lithiated compound, and a surface-treatment layer on the core.

Meanwhile an aspect of the present invention relates to a positive active material composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Accordingly, Applicants respectfully request that the rejection of claims 1 and 10 under the judicially created doctrine of obviousness-type double patenting be withdrawn because they are related to different matter from U.S. Patent Application Publication 2002/0071990.

Claims 1 and 10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10, and 25-37 of copending Application No. 10/627,725 (U.S. Patent Application Publication 2004/0018429).

Applicants respectfully traverse this rejection for at least the following reason.

Regarding the rejection of claims 1 and 10, it is noted that U.S. Patent Publication No. 2004/0018429 relates to a positive active material for a rechargeable battery comprising a core comprising at least one lithiated compound, and a surface-treatment layer on the core.

Meanwhile an aspect of the present invention relates to a positive active material

composition for a rechargeable lithium battery comprising a positive active material and at least one additive.

Accordingly, Applicants respectfully request that the rejection of claims 1 and 10 under the judicially created doctrine of obviousness-type double patenting be withdrawn because they are related to different matter from U.S. Patent Application Publication 2004/0018429.

REJECTIONS UNDER 35 U.S.C. §103:

Claims 1, 10, 38 and 40-41 are rejected under 35 U.S.C. §103(a) as being unpatentable over Amatucci et al. (U.S. Patent 5,705,291) in view of the Japanese publication JP 09-171813 (hereinafter referred to as "the JP '813 publication").

Applicants respectfully traverse this rejection for at least the following reason.

Regarding the rejection of independent claims 1 and 40, it is noted that claims 1 and 40 recite a positive active material composition for a rechargeable lithium battery comprising, amongst other novel features, at least one amorphous additive compound or an amorphous Al-included hydroxide comprising an amount at or between 0.1 weight % and 0.3 weight % based on the weight of the positive active material composition and said additive compound is prepared by drying a liquid comprising the thermal-absorbent element or the thermal-absorbent element-included compound at a temperature ranging from at or between room temperature and 200°C for at or between 1 and 24 hours.

The Office Action indicates that a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties.

However, "One way for a patent applicant to rebut a prima facie case of obviousness is to make a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected."

In the instant case, the additive recited in the claims, exhibits better life cycle characteristics, compared to the commercially available additive, when prepared as recited in the independent claims. FIG. 2, for example, illustrates XRD patterns of the additive recited in the independent claims and of a commercially available additive. As noted in FIG. 2 and

paragraph [0043] of the specification, the additive of the independent claims, forms a structure different from the commercially available additive and thus exhibits better cycle life characteristics.

Regarding the statement in the Office Action indicating that a method limitation incorporated into a product (namely, product-by-process) claim does not patentable distinguish the product because what is given patentable consideration is the product itself and not the manner in which the product was made, and therefore, the patentability of the product is independent of how it was made.

It is noted that MPEP 2113 indicates that "If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process unless it can be shown that the product produced by the process is in some manner measurably distinct from the product produced by another process."

Initially, Applicants note that the claims are not drawn to a product by process but rather to a product itself, and furthermore, Applicants note that this product differs from the prior art because it has a different structure.

However, assuming *arguendo* that the claims were drawn to a product by process, Applicants also note that MPEP 2113 recites "The **structure** implied by the process steps **should be considered** when assessing the patentability of product-by-process claims over the prior art, especially **where the product can only be defined by the process** steps by which the product is made, **or where the manufacturing process steps** would be expected to **impart distinctive structural characteristics to the final product**. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "etched" are capable of construction as structural limitations.)"

In the instant case, claims 1 and 40 recite that the additive compound is prepared by drying a liquid comprising the thermal-absorbent element or the thermal-absorbent element-included compound at a temperature ranging from at or between room temperature and 200°C for at or between 1 and 24 hours

Since the process by which the additive compound is formed yields an amorphous

additive which is a structural feature, it is necessary that the Office Action consider such structural feature as well as the process by which it is formed.

Therefore, although the Office Action alleges a coating composition having either a glassy or crystalline form, the Office Action does not take into consideration how this glassy or crystalline form is obtained. At most the Office Action recites that Amatucci discloses a process of annealing the material at a temperature in the excess of about 400°C, preferably in the range of about 500-800°C. However, this range is far in excess of the range disclosed in independent claims 1 and 40 and is likely to yield a product having an entirely different structure than the one recited in independent claims 1 and 40.

Accordingly, Applicants respectfully assert that the rejection of claims 1 and 40 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor the JP'813 publication, whether taken singly or combined, teach or suggest each feature of independent claims 1 and 40.

Furthermore, Applicants respectfully assert that the rejection of dependent claim 38 under 35 U.S.C. § 103(a) should be withdrawn at least because of its dependence from claim 1 and the reasons set forth above, and because the dependent claim includes additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claim 38 also distinguishes over the prior art.

Regarding the rejection of independent claims 10 and 41, it is noted that these claims recite a positive active material composition comprising, amongst other novel features, that the thermal-absorbent element is one of amorphous Al and crystalline B or a crystalline B-included hydroxide, and wherein said at least one additive compound comprises an amount at or between 0.1 weight % and 0.3 weight % based on the weight of the positive active material composition, and wherein said additive compound is prepared by drying a liquid comprising a thermal-absorbent element or a thermal-absorbent element-included compound at a temperature at or between room temperature and 200°C for at or between 1 and 24 hours.

As noted above, the Office Action indicates that a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties.

However, as also noted above, "One way for a patent applicant to rebut a prima facie case of obviousness is to make a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected."

In the instant case, the additive obtained exhibits superior life cycle characteristics when prepared as noted in the claims and FIGS. 6 and 7 illustrate such results. Furthermore, as noted at paragraphs [0050], [0059] and [0060] of the specification, the additive recited in claims 10 and 41, has thermal characteristics different from the commercially available additive and thus provides thermal stability.

Therefore, the additive recited in independent claims 10 and 41, when used in the disclosed ratios, yields unexpected results as illustrated in FIGS. 6 and 7 and described in paragraphs [0059] and [0060] of the specification.

Accordingly, Applicants respectfully assert that the rejection of claims 10 and 41 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor the JP'813 publication, whether taken singly or combined, teach or suggest each feature of independent claims 10 and 41.

Claims 1, 10, 38 and 40 are rejected under 35 U.S.C. §103(a) as being unpatentable over Amatucci in view of Yano et al. (U.S. Patent 5,827,494).

Applicants respectfully traverse this rejection for at least the following reason.

Regarding the rejection of independent claims 1, 10 and 40, the Office Action indicates that with respect to the method limitation, that a method limitation incorporated into a product (namely, product-by-process) claims does not patentably distinguish the product because what is given patentable consideration is the product itself and not the manner in which the product was made. Therefore, the patentability of the product is independent of how it was made.

MPEP 2113 indicates that "If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process unless it can be shown that the product produced by the process is in some manner measurably distinct from the product produced by another process."

Initially, Applicants note that the claims are not drawn to a product by process but rather to a product itself, and furthermore, Applicants note that this product differs from the prior art because it has a different structure, is formed by a different process and provides different properties.

However, assuming *arguendo* that the claims were drawn to a product by process, Applicants also note that MPEP 2113 recites "The **structure** implied by the process steps **should be considered** when assessing the patentability of product-by-process claims over the prior art, especially **where the product can only be defined by the process** steps by which the product is made, **or where** the manufacturing **process steps** would be expected to **impart distinctive structural characteristics to the final product**. See, e.g., *In re Gamero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "etched" are capable of construction as structural limitations.)"

In this case, the product recited in independent claims 1, 10 and 41 has an amorphous structure which is obtained by drying a liquid comprising a thermal-absorbent element or a thermal-absorbent element-included compound at a temperature at or between room temperature and 200°C for at or between 1 and 24 hours.

Amatucci fails to teach or suggest this feature. At most the Office Action recites that Amatucci discloses a process of annealing the material at a temperature in the excess of about 400°C, preferably in the range of about 500-800°C. However, this range is far in excess of the range disclosed in independent claims 1, 10 and 40 and is likely to yield a product having an entirely different structure than the one recited in independent claims 1, 10 and 40.

With respect to the recited ranges, the Office Action indicates that a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties.

However, "One way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected."

In the instant case, unexpected results are obtained when the additive in the above

weight percentage is used in the preparation of the positive active material composition and the composition itself yields superior characteristics. FIG. 2 for example illustrates XRD patterns of the additive recited in claims 1, 10 and 40 and a commercially available additive. As noted in FIG. 2 and paragraph [0043] of the specification, the additive recited in the claims, has a different structure from the commercially available additive, and exhibits better cycle life characteristics. Accordingly, the composition recited in the claims exhibits superior properties.

Therefore, Applicants respectfully assert that the rejection of claims 1, 10 and 40 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor Yano, whether taken singly or combined, teach or suggest each feature of independent claims 1, 10 and 40.

Regarding the rejection of claim 38, it is respectfully asserted that the rejection of dependent claim 38 under 35 U.S.C. § 103(a) should be withdrawn at least because of its dependence from claim 1 and the reasons set forth above, and because the dependent claim includes additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claim 38 also distinguishes over the prior art.

(At least) Claim 1 is rejected under 35 U.S.C. §103(a) as being unpatentable over Amatucci in view of the Korean publication KR 1997-56445 (heretofore the KR'445).

Applicants respectfully traverse this rejection for at least the following reasons.

Regarding the rejection of independent claim 1, the Office Action indicates that a method limitation incorporated into a product (namely, product-by-process) claim does not patentable distinguish the product because what is given patentable consideration is the product itself and not the manner in which the product was made. Therefore, the patentability of the product is independent of how it was made.

As noted above, MPEP 2113 indicates that "If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process unless it can be shown that the product produced by the process is in some manner measurably distinct from the product produced by another process."

Initially, Applicants note that claim 1 is not drawn to a product by process but rather to a product itself, and furthermore, Applicants note that this product differs from the prior art

because it has a different structure, is formed by a different process and provides different properties.

However, assuming *arguendo* that the claim was drawn to a product by process, Applicants also note that MPEP 2113 recites "The **structure** implied by the process steps **should be considered** when assessing the patentability of product-by-process claims over the prior art, especially **where the product can only be defined by the process** steps by which the product is made, **or where the manufacturing process steps** would be expected to **impart distinctive structural characteristics to the final product**. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "etched" are capable of construction as structural limitations.)"

In this case, the product recited in independent claim 1 has an amorphous structure which is obtained by drying a liquid comprising a thermal-absorbent element or a thermal-absorbent element-included compound at a temperature at or between room temperature and 200°C for at or between 1 and 24 hours.

Amatucci fails to teach or suggest this feature. At most the Office Action recites that Amatucci discloses a process of annealing the material at a temperature in the excess of about 400°C, preferably in the range of about 500-800°C. However, this range is far in excess of the range disclosed in independent claims 1, 10 and 40 and is likely to yield a product having an entirely different structure than the one recited in independent claims 1, 10 and 40.

KR '445 also fails to teach or suggest such novel features.

Accordingly, neither Amatucci nor KR '445, whether taken singly or combined, teach or suggest such novel features.

With respect to the recited ranges, the Office Action indicates that a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties.

However, "One way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected."

In the instant case, unexpected results and a product yielding superior properties are obtained when the additive in the above weight percentage is used in the preparation of the positive active material composition. As noted above, FIG. 2, for example, compares XRD patterns of the additive recited in claim 1 and a commercially available additive. As noted in FIG. 2 and paragraph [0043] of the specification, the additive recited in the claim, has a different structure from the commercially available additive, and exhibits better cycle life characteristics. Accordingly, the composition recited in the claims exhibits superior properties.

Therefore, Applicants respectfully assert that the rejection of claim 1 under 35 U.S.C. §103(a) should be withdrawn because neither Amatucci nor Yano, whether taken singly or combined, teach or suggest each feature of independent claim 1.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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